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TEST PROGRESS DATA
NAVAER-2835 (REV. 10.55)

64-7
AER-REP-GM-11-N1239/4/64
N1239/be
DATE 13 FEB 1964

FROM Commander, U. S. Naval Missile Center, Point Mugu, California			
TO Chief, Bureau of Naval Weapons		(Division) RM-45	(Section)
PROJECT NUMBER RM 45-1	ITEM NUMBER AQM-37A Ser KD 8679	PRIORITY Normal	AIRCRAFT BOMB A-4B BUNO 145034
PROJECT TITLE, OR EQUIPMENT UNDER DEVELOPMENT OR TEST Test and Evaluation of AQM-37A			
DATE OF TEST 16 January 1964	LOCATION OF TEST Naval Missile Center	COGNIZANT BUAE DIVISION AND SECTION RM-45	
TEST ENGINEER G. R. Hopp	COGNIZANT ACTIVITY SECTION Aero-Space Operations Dept.	COGNIZANT BUAE ENGINEER C. E. O'Mara	
ENCLOSURES <input type="checkbox"/> PHOTOGRAPHS <input type="checkbox"/> DRAWINGS <input type="checkbox"/> ATTACHED <input type="checkbox"/> SEPARATE <input checked="" type="checkbox"/> NONE			

REPORT OF TEST (Purpose, test procedure, results)

AER-REP-GM-11. Refer COMNMC splitr REP-10-N12/4/64 N1239/ma of 17 January 1964

INTRODUCTION AND TEST CONDITIONS:

Flight Test No. 70 of the AQM-37A target was the ninth flight test conducted for Product Improvement. The target was to be flown in accordance with a 1,000 foot altitude, 0.8 Mach cruise flight mission as shown in Figure 2-7 of NAVWEPS 01-90 TBA-1 "Handbook Operation and Service Instructions with Parts Breakdown," changed 1 November 1963 with the following changes:

- a. Launch altitude - 2,000 feet.
- b. Booster selector - 2.
- c. Nitrogen regulated pressure - 450 Psig.

Previously, low altitude targets, using 3,000 feet as the launch altitude, were successfully flown for use by Fleet squadrons. This was the first low altitude flight mission using 2,000 feet as the launch altitude.

ACTION

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TITLE

One RF-8A aircraft was employed to obtain a photographic record of target separation and one DF-8A aircraft was utilized for chase to monitor target altitude and speed.

One mainland and one San Nicolas Island instrumentation C-band radars (FPS-16) were scheduled to track the DF-8A chase aircraft for the purpose of obtaining metric radar data. In addition, three mainland theodolite camera stations were scheduled for the purpose of obtaining a photographic record of the target flight.

TEST OBJECTIVES:

- a. Determine the target low altitude, level flight profile, when launched at 2,000 feet pressure altitude at a speed of 0.6 Mach indicated.
- b. Verify target separation characteristics from the A-4B aircraft in a low altitude environment.

TEST RESULTS:

The radar data that were recorded for this target flight operation were of poor quality because of the low altitudes encountered. As a result, pilot reports and photographic data were the prime sources of data from which target performance could be determined.

The useable flight data indicate that the target was successfully launched from the fuselage centerline station of the A-4B aircraft at a radar altitude of 1,950 feet and a speed of 0.6 Mach. Photographic coverage obtained of the target separation indicates normal target attitude and vertical rate of descent following launch. Pilot reports of the target flight indicate the target descended rapidly to approximately 350 feet altitude, momentarily assumed a horizontal attitude, then continued to descend and impacted into the sea at 33 seconds. No data are available to determine the time of engine ignition; however, it was reported by the chase pilot that the engine was operating from approximately 5 seconds to sea impact.

No useable film was obtained from the theodolite camera stations because of a haze condition in the launch area.

DISCUSSION:

Because the target was not telemetry configured, the cause of the excessive postlaunch descent experienced during this flight test cannot be determined.

Additional captive flight tests and target launches using telemetry configured targets will be conducted to fully investigate AQM-37A capabilities in the low altitude region. The specific areas to be investigated are as follows:

- a. Errors in the target altitude sensing system induced by non-uniform airflow around the target prior to launch.
- b. Sensitivity of the target pitch control system.
- c. Pitch attitude of the target at launch.

CONCLUSIONS:

The following conclusions are made in corresponding order of the test objectives:

- a. Because the target did not maintain level flight, there was no test to determine the target low altitude, level flight profile after being launched at 2,000 feet pressure altitude at a speed of 0.6 Mach indicated.
- b. The target separation characteristics from the A-4B aircraft in a low altitude environment appear to be satisfactory.